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Substitute for form 1449/PTO

# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 3

## **Complete if known**

Application Number	10/687,012
Filing Date	October 16, 2003
First Named Inventor	Romalis
Art Unit	2859
Examiner Name	Arana, L. M.
Attorney Docket Number	403-03

## **U. S. PATENT DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
L.H.A.		US-4,005,355	01-25-1977	Hopper et al.	
L.H.A.		US-6,472,869	10-29-2002	Upschulte et al.	
		US-			
		US-			
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## **FOREIGN DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>

Examiner Signature: *Rain Arana* Date Considered: 11/04

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**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author ( in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		---, <i>SQUID Sensors: Fundamentals, Fabrication and Applications</i> , Ed. Weinstock, H., Kluwer Academic (1996) (Abstract only).	
		AFFOLDERBACH, C., et al., An all-optical, high sensitivity magnetic gradiometer, <i>Appl Phys</i> (2002) B 75: 605-612.	
		ALEXANDROV, E.B. et al., Double-Resonance Atomic Magnetometers: from Gas Discharge to Laser Pumping, <i>Laser Phys.</i> (1996) 6: 244-251.	
		ALEKSANDROV, E.B., et al. Laser pumping in the scheme of an M <sub>x</sub> -magnetometer, <i>Optics and Spectr.</i> (1995) 78:292-298.	
		ALLRED, J.C., et al., High-sensitivity atomic magnetometer unaffected by spin-exchange relaxation, <i>Phys. Rev. Lett.</i> (2002) 89:130801-1 – 130801-4.	
		BISON, G., et al., A laser-pumped magnetometer for the mapping of human cardiomagnetic fields, <i>Appl. Phys. B.</i> (2003) 76:325-328.	
LMA		BISON, G., et al., Dynamical mapping of the human cardiomagnetic field with a room-temperature, laser-optical sensor, <i>Opt. Expr.</i> (2003) 11:904-909.	
		BUDKER, D., et al., Resonant nonlinear magneto-optical effects in atoms, <i>Rev. Mod. Phys.</i> (2002) 74:1153-1201.	
		BUDKER, D. et al., Nonlinear Magneto-optic Effects with Ultranarrow Widths, <i>Phys. Rev. Lett.</i> (1998) 81:5788-5791.	
		BUDKER, D., et al., Sensitive magnetometry based on non-linear magneto-optical rotation, <i>Phys. Rev. A</i> (2000) 62:043403-1 - 043403-7.	
		CLEM, T.R., Superconducting Magnetic Gradiometers For Underwater Target Detection, <i>Nav. Eng. J.</i> (1998) 110:139-149.	
		DEL GRATTA C, et al., Magnetoencephalography - a noninvasive brain imaging method with 1 ms time resolution, <i>Rep. Prog. Phys.</i> (2001) 64 :1759-1814.	
		DRUNG, D., et al., Improved direct-coupled dc SQUID read-out electronics with automatic bias voltage tuning, <i>IEEE T. Appl. Supercon.</i> (2001) 11:880-883.	
		GREENBERG, Ya.S., Application of superconducting quantum interference devices to nuclear magnetic resonance, <i>Rev. Mod. Phys.</i> (1998) 70:175-222.	
		HÄMÄLÄINEN M. et al., Magnetoencephalography-theory, instrumentation, and applications to non-invasive studies of the working human brain, <i>Rev. Mod. Phys.</i> (1993) 65:413-497 (Abstract and contents only).	
		HAPPER, W., Optical Pumping, <i>Rev. Mod. Phys.</i> 1972, 44:169-249 (Abstract and contents only).	

Examiner Signature	<i>Laura Arana</i>	Date Considered	11/04
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		HAPPER, W., et al., Effect of rapid spin exchange on the magnetic-resonance spectrum of alkali vapors, <i>Phys. Rev. A</i> (1977) <b>16</b> :1877-1991.		
		HAPPER W. et al., Spin-Exchange Shift and Narrowing of Magnetic Resonance Lines in Optically Pumped Alkali Vapors, <i>Phys. Rev. Lett.</i> (1973) <b>31</b> :273-276.		
		HARRY, G.M., et al., Two-stage superconducting-quantum-interference-device amplifier in a high-Q gravitational wave transducer, <i>Appl. Phys. Lett.</i> (2000) <b>76</b> :1446-1448.		
		KELHA, V.O., et al., Design, Construction and Performance of a large-volume magnetic shield, <i>IEEE Trans. Magn.</i> (1982) <b>18</b> :260-270.		
		KIRSCHVINK, J.L., et al., Paleomagnetic evidence of a low-temperature origin of carbonate in the Martian meteorite ALH84001, <i>Science</i> (1997) <b>275</b> :1629-1633.		
		KOMINIS, I. K. et al., A subfemtotesla multichannel atomic magnetometer, <i>Nature</i> (2003) <b>422</b> :596-599.		
LUA		MCDERMOTT, R., et al., Liquid-state NMR and scalar couplings in microtesla magnetic fields, <i>Science</i> (2002) <b>295</b> :2247-2249.		
		MURTHY, S. A., et al, New Limits on the Electron Electric Dipole Moment from Cesium, <i>Phys. Rev. Lett.</i> (1989) <b>63</b> :965-968.		
		NENONEN, J., et al., Thermal noise in biomagnetic measurements, <i>Rev. Sci. Instr.</i> (1996) <b>67</b> :2397-2405.		
		NENONEN, J., et al., Thermal Noise in a Magnetically Shielded Room, in <i>Biomagnetism '87</i> , Ed. K. Atsumi et al., Denki University Press, Tokyo, 1988), p. 426-429.		
		OUKHANSKI, N., et al., Low-drift broadband directly coupled dc SQUID read-out electronics, <i>Physica C</i> (2002) <b>368</b> :166-170.		
		RODRIGUEZ, E., et al., Perception's shadow: long-distance synchronization of human brain activity, <i>Nature</i> (1999) <b>397</b> :430-433.		
		TRALSHAWALA, N., et al., Practical SQUID instrument for non-destructive testing, <i>Appl. Phys. Lett.</i> (1997) <b>71</b> :1573-1575.		
		TS'O, D.Y., et al., Functional organisation of primate visual cortex revealed by high-resolution optical imaging, <i>Science</i> (1990) <b>249</b> :417-420.		
		TSUEI, C.C. et al., Phase-sensitive evidence for d-wave pairing symmetry in electron-doped cuprate superconductors, <i>Phys. Rev. Lett.</i> (2000) <b>85</b> :182-185.		
		VARPULA, T., et al, <i>J. Appl. Phys.</i> (1984) <b>55</b> :4015-4021.		
		ZIMMERMAN, J.E., et al., Design and operation of stable RF-biased superconducting point-contact quantum devices, and a note on properties of perfectly clean metal contacts. <i>J. Appl. Phys.</i> (1970) <b>41</b> , 1572-1580.		
Examiner Signature				Date Considered <div style="text-align: right; font-size: 1.2em;">11/04</div>

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